

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner
US Department of Commerce
United States Patent and Trademark
Office, PCT
2011 South Clark Place Room
CP2/5C24
Arlington, VA 22202
ETATS-UNIS D'AMERIQUE
in its capacity as elected Office

Date of mailing:

07 December 2000 (07.12.00)

International application No.:

PCT/US00/08745

Applicant's or agent's file reference:

F136122

International filing date:

21 April 2000 (21.04.00)

Priority date:

02 June 1999 (02.06.99)

Applicant:

GUPTA, Sandeep et al

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International preliminary Examining Authority on:

28 August 2000 (28.08.00)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer:

J. Zahra

Telephone No.: (41-22) 338.83.38

INTERNATIONAL SEARCH REPORT

 international application No.
 PCT/US00/08745

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : C07D 239/22, 265/28, 279/22, 471/12; A01N 43/54, 43/84, 43/60

US CL : 544/101, 58.2, 346, 309; 504/243, 225, 222, 235

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 544/101, 58.2, 346, 309; 504/243, 225, 222, 235

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CAPLUS, EAST

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 406 993 A2 (SCHERING AKTIENGESELLSCHAFT) 09 January 1992, entire document.	1, 3, 4, 7-11
X	US 5,364,856 A (BOOHER et al) 15 November 1994, columns 1 and 2.	1 and 3
X	KOST, A.N. Nitration of Lilolidenes. Akad. Nauk. Latv. SSR, January 1966, Vol. 1, pages 39-45, especially page 42.	1 and 3

☐ Further documents are listed in the continuation of Box C.
 ☐ See patent family annex.

* Special categories of cited documents:

A document defining the general state of the art which is not considered to be of particular relevance

E earlier document published on or after the international filing date

L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

O document referring to an oral disclosure, use, exhibition or other means

P document published prior to the international filing date but later than the priority date claimed

T

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

Z

document member of the same patent family

Date of the actual completion of the international search

13 JUNE 2000

Date of mailing of the international search report

31 JUL 2000

 Name and mailing address of the ISA/US
 Commissioner of Patents and Trademarks
 Box PCT
 Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

MUKUND SHAH

Telephone No. (703) 308-1235

INTERNATIONAL SEARCH REPORT

International application No.
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Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

Please See Extra Sheet.

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
☒ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

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BOX II. OBSERVATIONS WHERE UNITY OF INVENTION WAS LACKING

This ISA found multiple inventions as follows:

Group I. Claims 1-12, drawn to the compounds, composition, and methods of use of formula I wherein the core contains 1,4-oxazine as one of the cyclos shown in claim 2 as I-1.

Group II. Claims 1-12, drawn to the compound of formula I, composition, and methods of use wherein the core contains 1,4-thiazine as one of the cyclos shown in claim 2 as I-2.

Group III. Claims 1-12, drawn to the compounds of formula I, composition and methods of use wherein the core contains six membered ring with one or two nitrogens and five membered hetero rings as one of the cyclos shown in claim 2 as I-3 through I-11.

Group IV. Claims 1, 3-12, drawn to the compounds of formula I, composition, and methods of use wherein the compounds are other than these defined in Groups I-III.

The inventions listed as Groups do not relate to a single inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Groups I-IV are directed to structurally dissimilar compounds such that the variable core created by varying the definitions of the formula do not belong to a recognized class of chemical compounds in the art, i.e. tricyclic ring with 1,4-oxazine as one of its cyclos, tricyclic ring with 1,4-oxazine as one of its cyclos, and tricyclic ring with 1,4 diazine, pyridine, and five membered ring as one of its cyclos. References anticipating one invention would not render obvious the others. Thus, separate searches in the literature as well as in the U.S. Patent Clarification System would be required. The compounds also differ significantly in chemical structures. One skilled in the art would not consider such diverse structures as functional equivalents of each other. The mere fact that there is a single similarity is not in itself a significant reason to render the whole embodiment obvious.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 26 OCT 2001

PCT

Applicant's or agent's file reference F136122	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US00/08745	International filing date (day/month/year) 21 April 2000 (21.04.2000)	Priority date (day/month/year) 02 June 1999 (02.06.1999)
International Patent Classification (IPC) or national classification and IPC IPC(7): C07D 239/22, 265/28, 279/22, 471/12; A01N 43/54, 43/84, 43/60 and US Cl.: 544/101, 58.2, 346, 309; 504/243, 225, 222, 235		
Applicant ISHIHARA SANGYO KAISHA, LTD.		
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>5</u> sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of <u>0</u> sheets.</p> <p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> I <input checked="" type="checkbox"/> Basis of the report II <input type="checkbox"/> Priority III <input type="checkbox"/> Non-establishment of report with regard to novelty, inventive step and industrial applicability IV <input checked="" type="checkbox"/> Lack of unity of invention V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement VI <input type="checkbox"/> Certain documents cited VII <input type="checkbox"/> Certain defects in the international application VIII <input type="checkbox"/> Certain observations on the international application 		
Date of submission of the demand 28 August 2000 (28.08.2000)	Date of completion of this report 24 September 2001 (24.09.2001)	
Name and mailing address of the IPEA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer <i>Dorthea Lawrence For</i> Hong Liu Telephone No. (703) 358-1235	

Form PCT/IPEA/409 (cover sheet) (July 1998)

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US00/08745

I. Basis of the report

1. With regard to the elements of the international application:*

☒ the international application as originally filed.☒ the description:

pages 1-30 as originally filed

pages NONE, filed with the demand

pages NONE, filed with the letter of _____

☒ the claims:

pages 31-38 as originally filed

pages NONE, as amended (together with any statement) under Article 19

pages NONE, filed with the demand

pages NONE, filed with the letter of _____

☒ the drawings:

pages NONE as originally filed

pages NONE, filed with the demand

pages NONE, filed with the letter of _____

☒ the sequence listing part of the description:

pages NONE as originally filed

pages NONE, filed with the demand

pages NONE, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).☐ the language of publication of the international application (under Rule 48.3(b)).☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

☐ contained in the international application in printed form.☐ filed together with the international application in computer readable form.☐ furnished subsequently to this Authority in written form.☐ furnished subsequently to this Authority in computer readable form.☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.4. ☒ The amendments have resulted in the cancellation of:☒ the description, pages NONE☒ the claims, Nos. NONE☒ the drawings, sheets/fig NONE5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

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IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees the applicant has:

- ☐ restricted the claims.
☒ paid additional fees.
☐ paid additional fees under protest.
☐ neither restricted nor paid additional fees.

2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention is accordance with Rules 13.1, 13.2 and 13.3 is

- ☐ complied with.
☒ not complied with for the following reasons:

Please See Continuation Sheet

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

- ☒ all parts.
☐ the parts relating to claims Nos. ____

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

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V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. STATEMENT

Novelty (N)	Claims <u>2, 3, 5, 6</u>	YES
	Claims <u>1, 3, 4, 7-11</u>	NO
Inventive Step (IS)	Claims <u>2, 3, 5, 6</u>	YES
	Claims <u>1, 3, 4, 7-11</u>	NO
Industrial Applicability (IA)	Claims <u>1-12</u>	YES
	Claims <u>NONE</u>	NO

2. CITATIONS AND EXPLANATIONS

Claims 1, 3, 4, 7-11 lack novelty under PCT Article 33(2) as being anticipated by SCHERING AKTIENGESELLSCHAFT (EP 0406993). The reference teaches the compounds and compositions, and methods of use of the compounds (See the Examples).

Claims 1, 3, 4, 7-11 lack an inventive step under PCT Article 33(3) as being obvious over SCHERING AKTIENGESELLSCHAFT (EP 0406993). The reference teaches a generic group of benzoxazolinon and benzoxazinon derivatives (See formula I, page 3), in particular, wherein W is a group of formulae W1-W4, A is -CH₂-CH₂-CH₂-, V is H, fluoro, or chloro. One of ordinary skill in the art would have been motivated to select the claimed compounds from the genus in the reference since such compounds would have been suggested by the reference as a whole.

Claims 1 and 3 lack novelty under PCT Article 33(2) as being anticipated by BOOHER et al. (US 5,364,856). The reference teaches the compounds (See the compounds made).

Claims 1 and 3 lack an inventive step under PCT Article 33(3) as being obvious over BOOHER et al. (US 5,364,856). The reference teaches a generic group of rahydrobenz[cd]indole derivatives (See formula I, col. 1), in particular, wherein HET is a tetrazolyl ring or an aromatic 5- or 6-membered heterocyclic ring. One of ordinary skill in the art would have been motivated to select the claimed compounds from the genus in the reference since such compounds would have been suggested by the reference as a whole.

Claims 2, 5 and 6 meet the criteria set out in PCT Article 33(2) and (3) because the prior art does not teach or fairly suggest the claimed invention.

----- NEW CITATIONS -----
NONE

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

This Authority considers that the requirement of unity of invention is accordance with Rules 13.1, 13.2 and 13.3 is:

Group I, Claims 1-12, drawn to the compounds, composition, and methods of use of formula I wherein the core contains 1,4-oxazine as one of the cyclos shown in claim 2 as 1-1.

Group II, Claims 1-12, drawn to the compound of formula I, composition, and methods of use wherein the core contains 1,4-thiazine as one of the cyclos shown in claim 2 as 1-2.

Group III, Claims 1-12, drawn to the compounds of formula I, composition and methods of use wherein the core contains six membered ring with one or two nitrogens and five membered hetero rings as one of the cyclos shown in claim 2 as 1-3 through 1-11.

Group IV. Claims 1, 3-12, drawn to the compounds of formula I, composition, and methods of use wherein the compounds are other than these defined in Groups I-III.

The inventions listed as Groups do not relate to a single inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Groups I-IV are directed to structurally dissimilar compounds such that the variable core created by varying the definitions of the formula do not belong to a recognized class of chemical compounds in the art, i.e. tricyclic ring with 1,4-oxazine as one of its cyclos, tricyclic ring with 1,4-oxazine as one of its cyclos, and tricyclic ring with 1,4 diazine, pyridine, and five membered ring as one of its cyclos. References anticipating one invention would not render obvious the others. Thus, separate searches in the literature as well as in the U.S. Patent Clarification System would be required. The compounds also differ significantly in chemical structures. One skilled in the art would not consider such diverse structures as functional equivalents of each other. The mere fact that there is a single similarity is not in itself a significant reason to render the whole embodiment obvious.